Air Quality Permitting
Statement of Basis

July 6, 2006

Permit to Construct No. P-060014

Mirage Enterprises Inc., Nampa, Idaho

Facility ID No. 027-00092

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FINAL

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Acronyms, Units, and Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EI	emissions inventory
EL	emissions screening level
EPA	U.S. Environmental Protection Agency
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
MACT	Maximum Achievable Control Technology
MSDS	material safety data sheet
NAAQS	national ambient air quality standard
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
°F	degree Fahrenheit
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
Rules	Rules for the Control of Air Pollution in Idaho
SIP	State Implementation Plan
SO_2	sulfur dioxide
TAP	toxic air pollutant
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

Mirage Enterprises Inc. (Mirage), located in Nampa , manufactures a wide variety of cargo trailers for commercial and retail sale in the region. The facility has two emission sources; one paint spraying booth which is already permitted and in operation (paint booth no. 1), and one which is proposed (paint booth no. 2).

3. FACILITY / AREA CLASSIFICATION

Mirage is defined as a true minor facility, because its potential to emit is less than all major source thresholds. There are a number of chemicals found in the paint used by Mirage, but these chemicals are not found in the Hazardous Air Pollutant list specified by the Clean Air Act. Mirage produces cargo trailers that are classified as transportation equipment and therefore falls under SIC code 3715 (trailer manufacturing). The AIRS classification is "B."

The facility is located within AQCR 64 and UTM zone 11. The facility is located in Canyon County which is designated as attainment or unclassifiable for all criteria pollutants (PM_{10}, CO, NO_x, SO_2, lead, and ozone).

The AIRS information provided in the appendix defines the classification for each regulated air pollutant at Mirage. This required information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

The facility submitted a PTC application to address the requirements of IDAPA 58.01.01.200-228 for a second paint spray booth (paint booth no. 2).

4.1 Application Chronology

March 29, 2006	DEQ receives Mirage's PTC application for a second paint booth.
May 5, 2006	DEQ declares the application incomplete.
May 11, 2006	DEQ receives Mirage's additional information.
May 22, 2006	DEQ declares the application complete.
May 30, 2006 to June 29, 2006	DEQ provides an opportunity for comment on the application.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

A high-tech airless spray gun with 75 to 80% spray transfer efficiency is used in the paint booth. The paint booth consists of a horizontal drive-through structure equipped with doors at each end and a negative air blower to ensure that paint fumes are contained within the area of the booth. The blower pulls air from the interior of the booth through a series of particulate filters to a 30 inch vent located on the roof approximately 28 feet above grade. The flow rate is 23,000 actual cubic feet per minute. The exhaust temperature is 68 °F. The paint proposed to be used under this permit is 411 HAPS Free Gloss Black.

5.2 Emissions Inventory

A detailed emissions inventory (EI), including emissions of toxic air pollutants (TAPs), was provided in the PTC application. The EI has been reviewed by DEQ and appears to accurately reflect emissions from the facility. Table 5.1 provides a summary of the EI. These values demonstrate compliance with appropriate requirements for the second paint booth.

Table 5.1 EMISSIONS ESTIMATES

Emissions Unit	PM_{10}		VOC		Methyl n-Amyl Ketone		EL	n-Butyl Acetate		EL
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	lb/hr	T/yr	lb/hr
Paint booth no. 2	0.10	0.46	3.30	14.45	2.30	10.05	15.70	0.51	2.23	47.3

Based on historical operating data, the paint application was estimated to be 40 gallons per week. The production schedule for the paint booth is estimated at one shift per day, 10 hours per shift, and four days per week. The estimated normal maximum hourly paint consumption is calculated: (40 gallons/week)/(four days/week)/(10 hours/day) = 1 gallon/hour. The normal maximum hourly PM_{10} emissions for the paint are calculated: (normal maximum paint used; gallons/hour) x (density of paint) x (percent of solids in the paint) x (1-spray gun transfer efficiency) x (1-filter capture efficiency) = 1 gallon/hour x 10.2 lbs/gallon x 68.6% x (1 - 75%) x (1 - 94%) = 0.105 pounds/hour. The emissions of VOC, methyl-amyl ketone, and n-butyl acetate hourly emissions are calculated for the paint: (paint use; gallons/hour) x (pounds of chemical in one gallon of paint from MSDS) = lbs per hour. The annual emissions are the product of permitted hourly emissions rates and 8,760 hours per year. The emissions of methyl n-amyl ketone, and n-butyl acetate were below their respective screen emissions levels.

5.3 Modeling

A modeling analysis of the paint booth no. 2 stack using EPA's SCREEN3 dispersion model was submitted in the PTC application. DEQ has determined that the submitted modeling analysis demonstrates, to DEQ's satisfaction, that the emissions from the paint booth will not cause or significantly contribute to a violation of any PM_{10} ambient air quality standards. Per the March 29, 2006, supplemental application, the maximum concentration predicted by SCREEN3 using 1 gram/second (normalized concentration) was 6887 $\mu g/m^3$. The normalized concentration is relatively high because the paint booth stack has a rain cap. This value was multiplied by the appropriate persistence factors (0.4 for 24-hour average, and 0.08 for annual average) to obtain 24-hour or annual average normalized concentrations. The maximum 24-hour, or annual average ambient concentrations were calculated by multiplying the 24-hour, or annual, average normalized concentrations by the PM_{10} emissions rate in grams/second.

A summary of the modeling analysis is presented in Table 5.2. The detailed modeling analysis can be found in the PTC application.

Table 5.2 FULL IMPACT ANALYSIS RESULTS FOR PM_{10}

Pollutant	Averaging Period	Ambient Impact from the Paint Booth #2 Stack ($\mu g/m^3$)	Background concentration ($\mu g/m^3$)	Existing Paint Booth Vent	Total Ambient Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Percent of NAAQS
PM_{10}	24-hour	36.42	103	6.5	145.92	150	97%
	Annual	7.28	34.1	1.3	42.68	50	85.37%

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 ..... Permit to Construct Required

The paint booth no. 2 does not qualify for an exemption under Sections 220 through 223 of the Rules; therefore, a PTC is required.

IDAPA 58.01.01.203.02 ..... NAAQS

"No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:....02. NAAQS...."

The facility has demonstrated compliance, to DEQ's satisfaction, that this project will not cause or significantly contribute to a violation of any PM_{10} ambient air quality standards. The summary of the modeling analysis using EPA SCREEN3 dispersion model is in Table 5.2. Detailed modeling analysis can be found in the PTC application.

IDAPA 58.01.01.203.03 ..... Toxic Air Pollutants

"No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:....03. Toxic Air Pollutants Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586."

The emissions for methyl n-amyl ketone, and n-butyl acetate were below their respective screen emissions levels. Therefore, the TAPs emissions from the source satisfy the requirement of IDAPA 58.01.01.210.

40 CFR 60 ..... New Source Performance Standards (NSPS)

The paint booth is not subject to New Source Performance Standards.

40 CFR 61 and 63 ..... National Emission Standards for Hazardous Air Pollutants (NESHAP) & MACT

The paint booth is not subject to NESHAP & MACT.

5.5 Permit Condition Review

5.5.1 A maximum daily PM_{10} emissions limit is established in the permit. This limit ensures that PM_{10} emissions from the paint booth stack will not cause or significantly contribute to a violation of 24-hour PM_{10} ambient air quality standards. The annual emissions rate is inherently limited by the daily PM_{10} limit. Therefore the annual rate is not included in the permit. This daily limit also inherently limits the TAP emissions from the paint booth stack.

5.5.2 The paint booth stack is required to meet 20% opacity standard.

5.5.3 The permittee is required to record and monitor the paint usage once per day. The daily paint usage limit is derived by multiplying the maximum hourly paint usage in gallons per hour by 24 hours per day. The paint usage monitoring requirement for paint booth no. 1 was changed from gallons per week to gallons per day to demonstrate compliance with the daily PM_{10} emissions limit. With two paint booths in operation the modeled ambient PM_{10} concentration is closer to the 24-hour NAAQS for PM10, so more stringent monitoring is appropriate. The permittee is also required to operate and maintain the filter system in accordance with manufacturer's recommendations. These operating requirements ensure that the paint booth stack meets the daily PM_{10} emissions limit and opacity standard. The permittee is required to retain the records onsite for the most recent two-year period and to make them available to DEQ representatives upon request.

6. PERMIT FEES

Mirage submitted a $1,000 PTC application fee on March 28, 2006, in accordance with IDAPA 58.01.01.224. Mirage's emissions increase is between the 10 to 100 tons range. In accordance with IDAPA 58.01.01.225, the PTC processing fee was $5,000. The $5,000 PTC processing fee was received by DEQ on June 12, 2006.

Table 6.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM_{10}	0.5	0	0.5
VOC	14.5	0	14.5
TAPS/HAPS	0.0	0	0.0
Total:	15	0	15
Fee Due	**$ 5,000.00**		

*TAPS/HAPS emissions increase is included in the VOC emissions increase.

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

The draft permit was made available for Boise Regional Office review on June 30, 2006. The regional office provided comments on July 5, 2006. The comments are addressed in the permit.

7.2 *Public Comment*

An opportunity for a public comment period on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. The opportunity for public comment was held from May 30, 2006, to June 29, 2006. During this time, there were no comments on the application and no requests for a public comment period on DEQ's proposed action. DEQ called Mirage on June 1, 2006, to clarify whether or not the facility would like to see a draft permit prior to issuance and Mirage declined the opportunity to review a draft permit.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that Mirage be issued a final PTC No. P-060014 for paint booth no. 2. The permit also incorporates and replaces the permit conditions for paint booth no. 1. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

CH/bf Permit No. P-060014

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Appendix A

AIRS Information

P-060014

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Mirage Enterprises, Inc.
Facility Location: Nampa, Idaho
AIRS Number: 027-00092

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	B							A
PM_{10}	B							A
PT (Particulate)	B							U
VOC	B							U
THAP (Total HAPs)	B							
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B

Emissions Inventory

P-060014

EMISSION CALCULATIONS SPREADSHEET

Pollutants

			EL (lb/hr)	AAC (mg/m^3)
110-43-0 Methyl n-amyl ketone			15.7	11.75
123-86-4 n-Butyl acetate			47.3	35.5

Speciation (from MSDS)

Density			10.2	lbs/gal
VOC content			3.3	lbs/gal
Estimated solids			68.6	% by wt
Methyl n-amyl ketone			22.5	%
n-Butyl acetate			5	%

Site Specific Data

Usage rate			1	gal/hr
Spray gun transfer efficiency			75	%
Filter capture efficiency			94	%

Emission Rates

PM_{10}			0.10	lb/hr
Methyl n-amyl ketone			2.30	lb/hr
n-Butyl acetate			0.51	lb/hr